

Title (en)

RARE-EARTH DOPED THERMAL BARRIER COATING BOND COAT FOR THERMALLY GROWN OXIDE LUMINESCENCE SENSING, AND INCLUDING TEMPERATURE MONITORING AND MEASURING A TEMPERATURE GRADIENT

Title (de)

MIT SELTENEN ERDEN DOTIERTE WÄRMEDÄMMSCHICHT FÜR THERMISCH GEWACHSENE OXID-LUMINESZENZMESSUNG, EINSCHLIESSLICH TEMPERATURÜBERWACHUNG UND MESSUNG EINES TEMPERATURGRADIENTEN

Title (fr)

REVÊTEMENT DE LIAISON DE REVÊTEMENT DE BARRIÈRE THERMIQUE DOPÉE AUX TERRES RARES POUR LA DÉTECTION DE LUMINESCENCE D'OXYDE À CROISSANCE THERMIQUE, ET COMPRENANT LA SURVEILLANCE DE TEMPÉRATURE ET LA MESURE D'UN GRADIENT DE TEMPÉRATURE

Publication

**EP 4065943 A2 20221005 (EN)**

Application

**EP 20878037 A 20201007**

Priority

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- US 202017034098 A 20200928
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Abstract (en)

[origin: WO2021133454A2] A thermal barrier coated component includes a thermal barrier coating (TBC) applied onto the substrate. A metallic bond coat layer includes rare-earth luminescent dopants. A temperature sensing thermally grown oxide (TGO) layer is formed at the interface of the bond coat layer and ceramic top coat layer, and includes grown rare-earth luminescent ions migrated from the metallic bond coat layer in an amount sufficient to enable luminescence sensing of the TGO layer for real-time phosphor thermometry temperature measurements. A phosphor thermometry device determines luminescence lifetime decay and intensity variations for first and second rare-earth luminescent dopants and correlates to a temperature value for temperature monitoring of the TBC. A temperature gradient is measured across the TBC.

IPC 8 full level

**G01K 11/20** (2006.01); **C09K 11/77** (2006.01); **C23C 28/00** (2006.01); **G01K 13/08** (2006.01)

CPC (source: EP)

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